A Study of the Relationship Between Data Obtained by Faculty and Clinician Interviews and Self-Reported Generic Abilities of Applicants to a Graduate Physical Therapy Program

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by Therese Charlotte Casey
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Chapter 1

INTRODUCTION

Background of the Study

Gaining admission into a graduate level Physical Therapy Program has become a daunting and arduous task. Competition is high and the number of applicants far exceeds the available seats in the programs. For instance, at the University of Osteopathic Medicine and Health Sciences, the Program in Physical Therapy received 605 applications for the Class of 1999. Of these, 144 were offered an interview and 44 were accepted into the class. Added to this is frustration on the student's part in trying to meet the wide variety of criteria for admission. Every program has its own admission criteria, developed to hopefully screen for the most desirable candidates. These criteria include, but are not limited to, attainment of a specific grade point average (GPA), interviews, standardized tests, essays, and letters of recommendation. Additionally, each program of study seems to require a certain blend of classes, specifically compiled to prepare students for entry into the field of physical therapy. This problem, however, is not limited to the field of physical therapy. Occupational therapy and medical schools as well as non-health related graduate programs such as business and psychology are also finding themselves trying to answer the question "What are the best predictors of success?"

It is imperative that these questions be answered. Professional programs such as physical therapy should be accountable not only to accrediting bodies but to the community as well. Since admissions committees have the

unpleasant task of attempting to select who they think will succeed from large applicant pools, attempts must be made to assure the variables being examined are appropriate.

While numerous articles have attempted to determine the relationship between admissions variables and success in graduate school, most have utilized professional GPA, licensure scores, written and practical examination scores and matriculation as their measures of "success." While clinicians and researchers may believe that these cognitive variables are not necessarily an appropriate measure of what constitutes a good clinician, little information is available as to how to measure non-cognitive variables. Recently, however, May, Morgan, Lemke, Karst, and Stone (1995) have developed the "Generic Abilities", a list of the variables or behaviors believed to be necessary for those in the physical therapy profession. After surveying physical therapists affiliated with the University of Wisconsin-Madison, May, et al. (1995) determined the following to be examples of non-cognitive measures of a "good" clinician: professionalism, interpersonal skills, communication skills, responsibility, critical thinking and commitment to learning. While the reliability and validity of the Generic Abilities has not yet been determined, the possibility exists that this tool may be used in the future as a criteria for assessing those individuals wishing to be admitted into physical therapy programs.

The faculty in the Program in Physical Therapy at the University of Osteopathic Medicine and Health Sciences in Des Moines, Iowa, has long recognized the need for an objective and reliable method of screening for the

most desirable physical therapy students. Likewise, there appears to be agreement among the faculty that cognitive, intellectual variables are not always the most appropriate measure of success. Therefore, this study was conducted to see if any relationship exists between faculty and clinician interviews and the way in which physical therapy applicants rate themselves on non-cognitive variables. The non-cognitive variables used in this study were those included in the "Generic Abilities" form which was completed by all respondents in this study (Appendix B). It is hoped that information gained in this study will lead to further investigations by this faculty to determine appropriate admissions variables as well as measures of success in the field of physical therapy.

Purpose of the Study

The Admissions Committee for the Program in Physical Therapy at the University of Osteopathic Medicine and Health Sciences receives hundreds of applications every year. Attempting to discern who will be successful in the program as well as who will contribute positively to the field of physical therapy is a task which is not taken lightly. Currently, the initial criteria for admission include: the attainment of an overall and pre-requisite grade point average of 3.0 and experience in the field of physical therapy. After these initial criteria are met, applicants may be offered an interview which then contributes to the overall points an applicant is awarded.

While the Commission on Accreditation in Physical Therapy Education (CAPTE) has recommended global criteria for admission into a physical therapy program, at this point in time there is no universal standard among programs.

Some programs require standardized tests, such as the Graduate Record Exam (GRE), but an acceptable score differs from one program to the next. Other programs interview their applicants but the format and questions also differ among programs. Due to the lack of specific admissions criteria, the faculty at the University of Osteopathic Medicine and Health Sciences struggle with the weight that each of the required categories carries and if they indeed predict who will succeed in the program.

The purpose of this study was to determine if there is a relationship between how applicants to an entry-level masters physical therapy program rate themselves on the "Generic Abilities" form and how physical therapy faculty and clinicians rate these same applicants on a pre-selected interview form (Appendix C). This information will hopefully assist physical therapy programs in better selection of applicants in the future.

Research Hypothesis

The research hypothesis for this study was:

There is a correlation between how applicants to an entry-level Master's physical therapy program rate themselves on the "Generic Abilities" form and how physical therapy faculty and clinicians rate them on a pre-selected interview form.

Null Hypothesis

The null hypothesis for this study was:

There is no correlation between how applicants to an entry-level Master's physical therapy program rate themselves on the "Generic Abilities" form and how physical therapy faculty and clinicians rate them on a pre-selected interview form.

Delimitations of Study

In this study, the sample was limited to applicants to one entry-level master's physical therapy program who had passed an initial screening and were eligible for an interview. A further limitation was that these physical therapy applicants had volunteered to be part of this research project. In addition, this study only examined the relationship between two tools whose reliability and validity has not been established. Since the subjects for this study were selected from a relatively narrow population, this researcher would not attempt to generalize the results of this study to the general population of physical therapy students or applicants.

Assumptions

Assumptions made for this study were:

1. The applicants were honest in the manner in which they rated themselves on the Generic Abilities form.
2. Clinicians and faculty were consistent in their ratings of the applicants. While no study has been done looking at the interrater reliability of the interview

rating form, all clinicians and faculty have been instructed in how to use the form.

Chapter 2

REVIEW OF THE LITERATURE

The arduous task of identifying who will succeed in physical therapy school has been undertaken by many individuals. Long before physical therapy experienced an explosion in the number of applications and educational programs, researchers had been trying to determine who will succeed in physical therapy education. The problem, however, is that results of these studies have been inconsistent which makes it all the more difficult to generalize results. In addition, a variety of independent as well as dependent variables have been examined. Examples of independent variables include: undergraduate grade point average (UGPA), interview ratings, subscores on the Graduate Record Exam (GRE), the Allied Health Professions Admission Test (AHPAT), letters of recommendation, age and written essays. The most common dependent variables that have been examined include: professional grade point average (PGPA), licensing examination scores and clinical internship ratings.

Several studies have noted positive correlations between UGPA and PGPA. However, the amount of variance of PGPA that can be explained by UGPA and/or the degree of correlation between the two variables drastically varies (Levine, Knecht & Eisen, 1986; Balogun, Karacoloff & Farina, 1986; Graham, 1991; Federici & Schuerger, 1974). Conversely, several studies looking at this same relationship with students pursuing degrees in allied health education as well as programs such as business and psychology have shown

that these two variables are not correlated at all (Graham, 1991; Levine et al. 1986).

Levine et al. (1986) investigated the relationship between UGPA and PGPA in two groups of physical therapy students. In one sample (n = 25) preprofessional GPA and undergraduate science GPA were moderately, but significantly (r =.50 and r =.54 respectively) correlated with PGPA. However, in a second sample (n = 31), results demonstrated a positive but insignificant relationship between preprofessional GPA and PGPA (r =.19) as well as undergraduate science GPA and PGPA (r =.12). It is difficult to speculate as to why the authors found conflicting results between the two groups of subjects. Because the admissions criteria and the program's curriculum itself were no different between the groups, the most likely explanation may be the difference in sample size of the groups. The first group (n=25) found moderately significant results while the second (n=31) had findings which were positive but insignificant. The small increase in sample size from the first group to the second my have been enough to change the findings.

Balogun et al. (1986) studied the relationship between multiple admissions variables and professional grade point average in a baccalaureate physical therapy program. In this retrospective study, the files of eighty-three female graduates were examined. They found that UGPA accounted for 40% of the variance in PGPA and was the strongest predictor of success which was defined by the graduate grade point average.

Graham (1991) conducted a retrospective study of graduates of a master of business administration program. The subjects were put into two groups depending on whether they took the Miller Analogies Test (MAT) or the Graduate Management Admissions Test (GMAT). The sample size was equal for the two groups and the relationship between UGPA and PGPA was examined. Stepwise linear regression for the GMAT group showed no correlation between the two variables with only 4% of the variance in PGPA explained by UGPA. Conversely, regression analysis of the MAT group showed significance ($p < .05$) between the two variables being examined. Still, it is interesting to note that despite the significance, only 15% of the variance in the dependent variable (PGPA) could be explained by the independent variable (UGPA). However, one must exercise caution when attempting to generalize the results of this study to the general population of MBA students as the subjects in Graham's study were primarily single, caucasian males who were enrolled in an evening MBA program. While ethnic status alone did not correlate significantly with professional grade point average in this study, there were differences between the two groups (MAT and GMAT). Ethnic status of the GMAT group had a correlation coefficient of $r = .197$ with PGPA while the correlation between ethnic status and PGPA of the MAT group was.426. Again, despite the fact that neither of these differences reached a level of significance, it should be noted that the two groups were not homogeneous. Other differences between the two groups were also present. Overall, the MAT group was two years older and waited one year longer than the GMAT group before entering the MBA program.

Finally, Federici and Schuerger (1974), in their study of students in an applied M.A. psychology program (n=unknown), found that academic achievement, defined as graduate grade point average, was significantly correlated with UGPA. Again, as earlier studies have indicated, while the results were significant, the correlation was a only moderate one.

Overall, these studies demonstrate that if UGPA is correlated with PGPA, the relationship is modest at best. This still leaves much of the variance in PGPA unaccounted for. Why do the results of these studies vary so much? One possible explanation is that not all undergraduate programs are created equal. Programs can greatly differ in their level of difficulty. In addition, universities may opt to "weight" grades from a student's undergraduate institution. An example would be that a higher weight would be attached a grade from an Ivy League school while a grade from a community college would carry a lower weight. This practice can therefore influence the results of studies such as those being reviewed in this document. None of the studies examined made any reference to whether or not grades were "weighted," however, that does not mean that it was not done. Another possible explanation for the varying results found is that possibly competition declines after one is accepted into a graduate program. While the undergraduate student works diligently to keep his/her grade point average competitive to increase their chances of being accepted into a graduate or professional program, once accepted, competition can often fall by the wayside. In fact, in professional programs such as physical therapy, competition is discouraged in favor of working together and team building.

Therefore, while the need to maintain a specific grade point average may exist, students may not feel so driven to achieve high grades and may indeed feel empowered to learn for the sake of learning!

Interview rating scores are another variable that researchers have attempted to correlate with success in graduate or professional programs. Due to the increased workload on faculty members that interviews create, it is important that the benefit of conducting interviews be established.

In the same study where UGPA and PGPA were examined, Levine et al. (1986) also studied which type of interview, individual or group, was a stronger predictor of performance in a physical therapy program. The individual interview consisted of six content variables (knowledge of physical therapy, time management, responsibility, personal strengths and weaknesses, integrity and problem-solving) and one process variable (communication). These variables were assessed via a series of sixteen questions. The group interview consisted of seven content variables (knowledge of physical therapy, motivation, integrity, time management, maturity and judgment, flexibility and rigidity and problem-solving) and five process variables (communication, reaction to peers, reaction to authority figures, ability to modify one's own position and ability to summarize and paraphrase). The faculty:student ratio of the group interview varied greatly. The most common ratio was three faculty to five applicants but in some instances involved as few as two faculty members and as many as six applicants (Levine et al. 1986). The format for the group interview involved the applicants solving two different problems, designed to assess two of the variables, with

faculty in the room but not participating. Afterwards, the faculty followed up with questions to clarify and gain additional information. Statistical analysis demonstrated that neither type of interview correlated significantly with academic success (defined as graduate grade point average). In the individual interview, the authors in this study appear to have controlled for extraneous variables that may have influenced applicant ratings. All applicants were interviewed by the same faculty member who asked the same sixteen questions. In addition, the interviewer was blinded to the previous academic performance of all applicants. In doing so, the faculty member would not be biased against those students with poorer academic performance. One possible area of concern is that in addition to the sixteen standard questions asked of the applicants, clarification questions were also asked. This may have affected the results because the interviewer may have gotten more or less information from an applicant which may then have affected the rating given.

The method of conducting the group interview in this study may also have affected the results. First, the faculty:student ratio varied among the interviews. Because the same faculty were not involved with all interviews, the reliability of the ratings may have been affected. No mention was made by the authors as to whether or not the faculty members received any type of interview training which may have controlled for the use of so many different interviewers. Secondly, after the interviewers individually scored the applicants, the final rating given was a reflection of the faculty discussing and reaching a "consensus." No explanation was given regarding how consensus was achieved.

Roehrig (1990) examined the relationship between admissions variables, including preprofessional GPA and interviews, and whether or not a student had problems while enrolled in a baccalaureate physical therapy program. Problems were operationally defined as a) receipt of D or F grades, b) semester GPA below 2.5, c) withdrawal or dismissal from the program or d) deceleration (Roehrig, 1990). The type of interview utilized in this study was a group interview with two or three interviewers and five to seven applicants. The format of the group interview was much different from that used in the study by Levine et al in that each applicant had five minutes to give an opening statement followed by questions by the interviewers. The following criteria were assessed during the interview: verbal and nonverbal communication, professional image, poise, content of responses and overall impression. In this study, no correlation was found between interview ratings and whether or not a student had problems. On the other hand, preprofessional GPA did correlate with the presence or absence of academic problems. What is probably most interesting about these results is that students identified as having problems actually had slightly higher interview ratings than those without problems (Roehrig, 1990). The author was unable to explain this finding, stating only that the interview may have helped weaker students get into a program of study that they were academically ill prepared for. It is unclear why Roehrig believes that the interview helped poorer students gain admittance. The interviewers, according to Roehrig, did not have access to the applicant files, so the focus of the interview questions themselves must have been such that the student who was weaker academically was not screened out.

It would be interesting to see a) the profile of the applicants rejected after the interview and b) how students who were later identified as having problems in the professional program scored in the interview and how they did academically prior to the program.

In a study looking at the difference between traditional and nontraditional students and predictors of success, Hayes, Fiebert, Carroll, and Magill (1997) found that interview ratings may be able to predict academic achievement. They examined the files of 107 graduates of a physical therapy program and divided students into traditional (age 22 or younger) and nontraditional (age 23 or older). Multiple independent variables, one being interview scores, were examined to see if there existed any predictive ability with the dependent variable, PGPA. In the traditional student, interview scores were found to be highly correlated (r=.37) with PGPA. It should be pointed out, however, that despite this significance, only 14% of the variance in the professional grade point average could be accounted for by the interview ratings. Likewise, in the nontraditional student group, interview scores were found to be correlated (r=.38) with PGPA. Again, despite significance being found, only 14% of the variance in graduate grade point average is accounted for by the interview. Statistical analysis also demonstrated that while the older student had significantly lower freshman grade point averages, no difference was found in the final professional GPA between the older and younger groups. The mean interview scores between the two groups differed only slightly; 90.60 for the younger group and 90.01 for the older students. This is an interesting point because faculty often report older students

to be more mature and task oriented than their younger counterparts. While the content of the interview utilized in this study was not available, the author reported that there was no difference in the interview scores between the two groups.

In a retrospective study of physical therapy students, Balogun (1988) examined the relationship between interview ratings and academic and clinical performance. Balogun found that while interview ratings did not correlate with academic performance (defined as grade point average), the interview did reach statistical significance with clinical performance. In fact, thirty-five percent of the variance in clinical performance was accounted for by the interview score. However, one must view the findings with a degree of caution due in part to the small sample size (n = 42). Also, the exact format of the interview was not indicated. The author did report that the scores given were an "average of the ratings in a semi-structured interview" (Balogun, 1988). In addition, Balogun states in his discussion that since this study was conducted, the administration of the interview has been standardized and ambiguous items had been removed. This statement might lead a reader to conclude that there were problems with both the reliability and validity of the interview questions. Finally, Balogun assessed clinical performance differently, via a comprehensive examination. More specifically, the examination was divided into two parts. One portion, a written exam, was formatted to assess academic performance while the other, an oral-practical exam, was designed to assess clinical competence. This was accomplished through the use of case studies in the following areas: neurology,

musculoskeletal and cardiopulmonary. The author, in attempting to control for inter-rater error, had the same "experienced" clinician grade all students. A weakness of this format, however, was that students were randomly assigned to a case. Therefore, a student could have conceivably been assigned a content area in which he/she was particularly strong and, consequently would have scored very well. Likewise, another student may have been assigned a topic in which his/her knowledge base was not as good and therefore may have scored poorly. In order to control for this, all students should have been evaluated on all cases. This would also then give a more accurate picture as to the clinical competence of each student.

As the literature demonstrates, researchers have chosen different variables for their measurement of success in graduate or professional programs. While some simply examine the final or professional grade point average as the determination of success, others look beyond academic performance. Clinical internship ratings and performance on comprehensive practical examination scores are two examples of how some researchers are using "non-traditional" variables as measurements of success.

In a study of physical therapy students, Rheault and Shafernich-Coulson (1988) examined the relationship between preprofessional academic achievement and clinical performance across two clinical rotations. Preprofessional academic achievement was assessed through subjects overall and science grade point averages. Performance in the clinic was measured via a student performance report. This evaluation tool has not been formally

assessed to determine its validity and reliability, however, the authors state that "it is considered to be a reliable and valid tool for assessing clinical performance" (Rheault & Shafernich-Coulson, 1988). The authors in this study found no significant correlation between preprofessional academic achievement and performance in the clinic (r^2 =.0016). They also found that while the correlation between professional grade point average and clinical performance was higher, statistical significance was still not attained (r^2 =.0081). The most significant problem that stands out in this study is the use of the student performance report as an evaluation tool. Using a tool whose reliability and validity has not been determined can cause any findings to be suspect. In addition, no mention was made in the paper as to whether or not the clinicians filling out this evaluation tool were familiar with the tool or if they had been trained in its use. Even if no studies on reliability and validity had been done, the study would have stronger power in this researcher's eyes if some mention was made regarding the knowledge level of the clinicians filling it out.

In a study of nursing students (n=321) enrolled in six different nursing schools in Israel, Zeidner, Kremer-Hayon, and Laskov (1990) examined the correlation between scholastic aptitude scores, matriculation grades and group interview scores on the following criterion variables: clinical internship ratings, cumulative grade point average attained in nursing school and certification exam scores. Their results indicate that while performance on the group interview was a valid predictor of success in the clinical setting, it was not a strong predictor of professional grade point average or of certification exam scores. As might be

expected, scholastic aptitude scores were meaningfully correlated with grades attained in nursing school as well as success on the government licensing exam. The aptitude scores and matriculation grades, however, were less predictive of clinical internship success. The group interview in this study was vastly different from that used by other studies, lasting approximately two hours. After telling the interviewers about themselves, the applicants were placed in groups of three and asked to discuss a moral dilemma. Two interviewers then rated each applicant on a scale of 1 (very poor) to 5 (very good) in the following areas: ability to cope with evaluative anxiety, oral communication, comprehending instructions, empathy, consistency of behavioral responses, initiative and self-confidence. A strength of the interview is that the authors established good inter-rater reliability (r =.80) in a pilot study prior to conducting this research study.

Tidd and Conine (1974) attempted to answer the question "Do better students perform better in the clinic?" They wanted to investigate this because it has long been a belief that just because a student excels in the academic environment, it does not mean that they will do so in the clinic. Therefore, the records of 297 students who graduated from Indiana University between 1960 and 1972 were examined. The researchers found that academic achievement was positively and significantly correlated with clinical performance (r=.39). As with previous studies looking at the relationship between UGPA and PGPA, while the relationship is significant, 85% of the variance in clinical performance cannot be explained by academic achievement in the professional program. Additional correlations reaching significance were: clinical performance and achievement

in physical therapy coursework (r =.43), academic achievement and preprofessional GPA (r =.88) and academic achievement and achievement in physical therapy coursework (r =.73). Not surprising, higher correlations were found when comparing earlier grade point averages to those achieved in the professional program. That is, if one performs well academically in undergraduate work, they are likely to do so in later coursework.

In a slightly different vein, Gross (1989) examined the predictive value of preprofessional academic performance to clinical performance. The subjects for this study were 225 students from three graduating classes of three separate physical therapy programs (Gross, 1989). Reliability of the evaluation instruments used for rating clinical performance was not available. For all three physical therapy programs, preprofessional academic performance was poorly correlated with clinical performance. The question exists "Why did this study demonstrate different results than that of Tidd and Conine (1974)? One possible explanation might be that the previous study utilized subjects from one university while the latter had subjects from three different programs. The programs in the study by Gross were only chosen on the basis of geographical proximity and the desire on the author's part to only evaluate undergraduate physical therapy programs. It would be interesting to see if the results would have changed if the programs were chosen on their similarities in their curriculum and clinical requirements rather than geographical location. The two studies also differ in that Tidd and Conine examined the relationship between academic achievement in physical therapy school and clinical performance while Gross used

preprofessional academic performance as the independent variable. Some researchers and academicians believe that once enrolled in the program of one's choice, as opposed to taking required classes in a general area of study, a student's focus improves which may then be reflected in better academic performance. If this is indeed true, the results of Gross's study may have been different if PGPA, rather than preprofessional GPA, was used as the dependent variable.

Olney (1977) looked for a relationship between early academic performance and clinical competence in physiotherapy students at Queen's University in Kingston, Canada. In this prospective study, the files of 77 students (age and gender information unavailable) were studied in order to gain information on clinical evaluation reports and success during the academic portion of the curriculum. Clinical clerkship reports assessed a student's competence in the following areas: ability to assess patients, planning a treatment program, technical ability, patient management, adaptability, reaction to supervisor, attitude and cooperation, personality, work habits and potential growth. One item (potential growth) was not included in the data analysis as this item was often omitted by clinical instructors. The independent variable in this study was broken into twenty variables encompassing the academic portion of the physiotherapy curriculum. These variables included scores from 17 courses, average scores of all courses, pre-entrance credits and year of admission to the program. Of the 17 courses in the curriculum, only 13 were taken by all 77 subjects and therefore only these were included in the data analysis. Analysis of

the data demonstrated a small but significant relationship between academic performance and clinical performance. The independent variables that reached a level of significance with clinical performance were: electrotherapy and manipulations (r=.46), overall average of year 3 (r=.37), overall average of year 2 (r=.30), clinical course Physical Therapy 2 (r=.29), clinical course Physical Therapy 1 (r=.28), overall average of year 1 (r=.25), Biology (r=.24) and clinical course Physical Therapy 3 (r=.22). As with earlier studies, despite the fact that significance was found, these relationships are small. The independent variable with the highest correlation to clinical competence, electrotherapy and manipulations, explained only 21% of the variance in clinical performance. One weakness of Olney's study is that potentially important data was missing. First, one item on the clinical performance instrument, potential for growth, was omitted because not all clinical instructors indicated a response, The question that comes to mind is had the clinicians been trained as to how to fill out the form? If not, then are the other responses reliable? In addition, out of the 17 courses available, only 13 were taken by all 77 subjects. Why weren't the other four courses taken by all of the subjects? No explanation for this was offered by the author. One possible reason may be that the four courses were electives. In this case, there would not be as much concern than if the courses were a required part of the curriculum.

Olney's study showed that Year 3 average had one of the highest correlations with clinical competence. This high correlation should please the faculty of the program, since, according to the author, the content of the third

year is focused on advanced clinical course work. However, despite a significant correlation being found, the Year 3 average only accounts for 11% of the variance in clinical performance

Finally, in a study of medical school students, Murden, Galloway, Reid, and Colwill (1978) examined how academic performance and personal characteristics, as evaluated through an individual interview were correlated with clinical success. In this retrospective study, the files from 442 graduates from five separate medical classes were examined to obtain information on undergraduate academic performance and interview ratings. Undergraduate science grade point average and the three subsets of the Medical College Admission Test (MCAT), verbal ability, quantitative ability and science, were used as measures of academic performance. For the interview, students were assessed by three separate interviews in the areas of maturity, nonacademic achievement, motivation for a career in medicine and rapport. Nonacademic achievement was broadly defined by the medical school to include such items as leadership activities and success in college extra-curricular activities (Murden et al. 1978). Clinical success, the dependent variable in this study, was evaluated via a letter of evaluation that is completed by an advisory committee for each student. This evaluation letter is essentially a reference for a student's application to a specific internship. Statistical analysis showed that all of the characteristics evaluated in the interview were found to be significantly correlated with success on clinical internships.

Several issues come to mind when critically analyzing this study. First is the author's definition of clinical success, which was defined as internship evaluation letters. In the drafting of these letters, the author states that the advisory committee utilized personal knowledge of the student, information from the student's file in addition to clerkship or clinical internship ratings. A question could be raised regarding the content of the students file. If information from the earlier interview was in the file, then there would be overlap between the two variables. It may have made more sense to use the clerkship ratings as the dependent variable since they directly reflect the student's performance in the clinic. This author did report that correlations of the clinical clerkship ratings with the admissions variables were "nearly identical" to those of the internship ratings and admissions variables. However, these correlations were not included and could not therefore be scrutinized.

It is evident that identifying predictors of success is difficult at best. One of the problems in this researcher's opinion, is that success is poorly defined. Many other authors have acknowledged that the grade point average acquired by the end of one's education may not be an adequate definition of success. While there is no doubt that GPA reflects the immediate acquisition of information, one can not assume that this information is retained and used at a later time. Additionally, many occupations, including those in health care, require that one possess personal characteristics which are not easily taught or assessed. It may be these characteristics which may more adequately define who is or is not successful.

In the field of physical therapy, work is being done to identify those characteristics that are most important to clinical practice. This research, done by May, Morgan, Lemke, Karst, and Stone (1995) has identified these characteristics and termed them "generic abilities." These authors have defined generic abilities to be "attributes, characteristics or behaviors that are not explicitly part of a profession's core of knowledge and technical skills but nevertheless are required for success in that profession" (May et al. 1995).

In this study, a list of personal characteristics or generic abilities was generated by the Physical Therapy Program at the University of Wisconsin-Madison. This list was mailed to 76 clinical sites affiliated with the program. These sites gave input as to the abilities they expect of physical therapists. The list was then refined and this process continued until consensus was achieved. The ten characteristics which were identified through this process as the most desirable or important were: commitment to learning, interpersonal skills, communication skills, effective use of time and resources, use of constructive feedback, problem solving, professionalism, responsibility, critical thinking, and stress management. The criteria by which these abilities would be evaluated were then developed. Three levels, beginning, developing and advanced, were identified. The authors then proceeded to evaluate the overall effectiveness of the generic abilities. The first step was to have students evaluate themselves before and after a clinical internship and compared these ratings to ratings given by their clinical instructors or supervisors. The ratings from the students and

instructors were not compared, rather the results have been retained and will be used in the future to test for reliability and validity of the tool.

It remains to be seen whether or not the generic abilities will be an accurate tool for assessing the non-cognitive traits necessary in the physical therapy profession. Despite the fact that reliability and validity studies on the tool are lacking, the generic abilities are presently being used to evaluate students in the clinic and classroom, as well as by physical therapy supervisors and managers during performance evaluations. It is not unlikely to expect that, if found to be valid and reliable, this tool could be utilized in other similar professions. If direct application is not possible or appropriate, this study has at least paved the way in demonstrating to other professions the method of identifying the desirable traits or characteristics specific to each profession. At the University of Osteopathic Medicine and Health Sciences, it is hoped that eventually, these criteria will be utilized by the Program in Physical Therapy during the admissions process to screen for applicants who will become successful, contributors to the field of physical therapy.

Chapter 3

METHOD

Introduction

Sample Selection

The target population for this study were applicants to an entry-level Master's physical therapy program. More specifically, these applicants had already succeeded in passing a pre-screening process performed by the admissions committee and were subsequently invited for an interview at the University's Program in Physical Therapy. It was during this interview session that data collection took place. Of the 104 physical therapy applicants interviewed, sixty-five volunteered for this study (62.5%). Demographic information was not obtained as this information was not necessary for the study. Written informed consent (Appendix A) was obtained and the study was approved by the University's Institutional Review Board.

Data Collection

Data collection occurred on the day that applicants to the Program in Physical Therapy at the University of Osteopathic Medicine and Health Sciences were interviewed. Four separate interview days are scheduled for the Program in Physical Therapy. However, due to a delay in the study not being approved by the University's Institutional Review Board, data was only collected on the last three interview dates.

At the end of the interview day, after all interviews and scoring had occurred, the research study was explained to the applicants by a faculty member of the Physical Therapy Program. During this explanation, the faculty member repetitively stressed that participation in the study was strictly voluntary and that agreeing or refusing to participate in the study would have no effect on the applicant's potential admission into the Physical Therapy Program. After the study was explained, the applicants were then informed that they could stay and fill out the survey or leave if they did not wish to participate in the study. Sixty-five applicants volunteered for the study and informed consent was obtained from all subjects.

After all of the materials were turned in, a program secretary separated the consent form from the survey. Copies of the rating forms that the faculty and clinicians filled out during the interview were made and this information along with the applicant's survey results were analyzed. All data were initially analyzed using a Spearman rank correlation. A Bon Ferroni correction was then performed on the six correlations which reached significance in the initial analysis. The Bon Ferroni corrects for alpha inflation, which can occur when multiple correlations are performed.

Survey Instruments

Interviews

Applicants to the Program in Physical Therapy receive two, thirty minute interviews. One interview is conducted by a faculty member of the program and the second is with a physical therapy clinician from the Des Moines community.

All of the faculty members and clinicians receive training from the Physical Therapy admissions committee prior to the conducted interviews. The goal of the interview, types of questions to be asked and the method of rating applicants is covered during the training session.

Clinicians interested in participating in the interview process must meet certain criteria which include: attendance at a training session, at least one year of clinical experience and supervising at least one physical therapy student on a full-time internship.

Questions asked in the interview process have been developed and modified by the faculty in the Program in Physical Therapy. The questions are formatted so that the applicant must give specific examples of how they have reacted, or would react, to various scenarios. The faculty use the applicant's responses regarding the way in which they have behaved in the past to determine how they might behave in the future. They (the faculty) believe that this method of questioning helps to determine if the applicant is a good match for the university as well as for the profession of physical therapy. The scenarios utilized by the faculty can then be fit into seven criteria which include: adaptability, problem-solving, goal setting, oral communication, self-evaluation, professional selection and general knowledge of the physical therapy profession. The applicant's responses are then rated on a zero to seven point scale with half-points permissible. The criteria for scoring was pre-determined by the Physical Therapy Admissions Committee and approved by the faculty when this format was instituted, approximately four years ago. An example of faculty and

clinician questions, as well as the rating scale is included in Appendix C. Since the interview ratings were already in a numerical form, zero through seven, the scores were left in this format for the purposes of data analysis.

Generic Abilities

Participation in a professional physical therapy education program encompasses the development of psychomotor skills (i.e. doing purposeful movement) as well as certain professional behaviors. It is the lack of or inability to properly demonstrate these behaviors that may cause physical therapy students to have difficulties in the classroom and clinic. While it is difficult to teach these behaviors in a formal curriculum, most faculty and clinical instructors attempt to model the behaviors in their day to day interactions with students, colleagues and other health care professionals. Likewise, developing a mechanism of formally evaluating students on professional behaviors can be difficult as well. May et al. (1995) recognized the importance of identifying and evaluating key professional behaviors or "generic abilities" in physical therapy students. Feedback from seventy-six clinical sites utilized by the Physical Therapy Program at the University of Wisconsin-Madison helped define the characteristics most important for members of the physical therapy profession. These attributes are: commitment to learning, problem-solving, critical thinking, stress management, responsibility, professionalism, use of constructive feedback, effective use of time and resources, communication skills and interpersonal skills. After the behaviors were identified and defined the authors,

with feedback from clinicians, developed a schema by which each characteristic would be evaluated. Initially, the behaviors were categorized into one of three levels: beginning, developing and advanced (May et al. 1995). Since that time, however, the levels have been re-defined and expanded to include entry level (previously the advanced level) and post-entry level. This instrument (Appendix B) was administered to the 65 subjects who volunteered for this study. For the purpose of data analysis, the four levels of the generic abilities, beginning, developing, entry and post-entry, were assigned the numbers one through four.

Chapter 4

ANALYSIS OF THE DATA

Sixty-five applicants to the entry-level masters physical therapy program volunteered for this study. Due to the design of the study and the type of data collected, descriptive statistics were not generated. Using a Spearman rank order correlation coefficient, comparisons were made between how faculty and clinicians scored the applicant during the interview and how the applicants self-reported their attributes according to the Generic Abilities. In addition, observed frequency tables for all correlations were also generated. An example of this is seen in Table 1. This table demonstrates the frequency of responses for Generic Abilities item two and clinician interview question seven.

TABLE 1

	4.0	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**	**Total**
1	0	1	0	0	0	0	1
2	0	3	0	3	3	5	14
3	0	8	2	12	6	7	35
4	1	1	1	10	1	1	15
Total	1	13	3	25	10	13	65

Observed frequency table of Generic Ability question 2 and Clinician Question 7

As evident in the table, despite the fact that clinicians could have scored the applicants from zero to seven (including half points), only six of the possible fifteen categories were used. This same phenomenon can be seen with the generic abilities where only one of the applicants rated themselves as being at

the beginning level (category 1). This trend was consistent in all of the 140 observed frequency tables generated and will be discussed in more detail later. For the analysis, a total of 140 correlations were run, ten generic ability items and seven questions from each of the faculty and clinician interviewers. Comparisons were made across, but not within, the group. That is, the interview questions were looked at collectively with no distinctions made between who conducted the interview.

After the initial correlation analysis was completed, a Bon Ferroni correction was done to correct for alpha inflation. This was necessary due to the fact that when multiple statistical inference tests are performed, the cumulative Type I error risk increases. This risk can be calculated by multiplying the number of correlations run (140) by the alpha level (.05). By performing the Bon Ferroni correction, the family-wise alpha level remains at .05 but the individual, or per comparison, level becomes much smaller. This correction is calculated by dividing the alpha level (.05) by the number of comparisons (140). After performing this correction, only one comparison (Q6-C and GA-4) was significant.

Table 2 represents the Spearman rank correlation for the interview scores given by clinicians and the students' self-reported ratings on the generic abilities. As can be seen in the table, those items reaching significance ($p \leq .05$) were: GA-2 (interpersonal skills) and question 3 (self-evaluation); GA-2 and question 5 (adaptability); GA-4 (effective use of time and resources) and question 4 (oral communication); GA-4 and question 6 (knowledge of physical therapy); and GA-4 and question 7 (problem-solving). After performing the Bon Ferroni correction,

however, only one comparison (GA-4 and Q6-C) was significant at $p \leq .000357$.

Therefore, the research hypothesis must be rejected.

TABLE 2

Spearman rank correlation: comparison between clinician ratings and students self-evaluation

	GA-1	GA-2	GA-3	GA-4	GA-5	GA-6	GA-7	GA-8	GA-9	GA-10
Q1-C	.018	-.091	.069	-.140	-.026	-.077	.126	.074	.041	.056
Q2-C	.053	.028	.236	-.158	-.112	-.074	.082	-.089	.009	-.007
Q3-C	-.108	-.255*	-.037	-.176	-.118	-.237	-.023	-.112	-.018	-.134
Q4-C	-.040	-.070	.135	-.260*	-.077	-.138	.144	.149	.053	-.123
Q5-C	-.003	-.297*	-.114	-.155	-.212	-.118	.145	-.147	-.040	-.027
Q6-C	-.136	-.116	.074	-.301*	-.145	-.141	.067	0.000	-.132	.022
Q7-C	-.053	-.150	.104	-.408**	-.169	-.109	.083	-.109	.093	-.024

* denotes significance at $p \leq .05$
** denotes significance at $p \leq .000357$

Table 3 demonstrates the Spearman rank order correlations for the interview scores given by faculty and the students' self-reported ratings on the generic abilities. One comparison, GA-10 (stress management) and question 6

TABLE 3

Spearman rank correlation: comparison between faculty ratings and students self-evaluation

	GA-1	GA-2	GA-3	GA-4	GA-5	GA-6	GA-7	GA-8	GA-9	GA-10
Q1-F	-.025	-.031	.052	.015	.007	-.028	.029	.055	-.136	.030
Q2-F	-.076	-.068	.003	-.014	-.133	-.068	-.034	.122	-.098	-.001
Q3-F	-.173	-.130	.034	.017	-.022	-.182	-.034	-.010	-.105	.020
Q4-F	-.003	-.029	.087	-.083	-.061	-.124	.049	.140	.064	-.018
Q5-F	-.019	-.033	.200	-.029	-.040	-.056	.110	.164	-.084	.134
Q6-F	-.089	-.094	.237	.022	-.057	-.087	.061	.037	.007	.283*
Q7-F	-.039	-.208	.117	-.117	-.136	-.138	.079	-.202	-.004	.002

* denotes significance at $p \leq .05$

(knowledge of physical therapy) reached significance ($p \leq .05$) during the initial analysis. After the Bon Ferroni correction, however, no comparisons were significant. Again, due to the lack of significance, the research hypothesis was rejected.

Chapter 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Discussion

The purpose of this study was to examine the relationship between applicant's interview scores and self-reported ratings on professional behaviors as defined by the Generic Abilities. After correcting for possible alpha inflation, only one correlation, GA-4 (effective use of time and resources) and clinician question seven (problem-solving) reached significance. It is interesting that there would be a relationship between these two variables since they do not appear to be related in any way. While it could be argued that one must employ problem-solving skills when effectively using time and resources, the link between these two items seems weak at best.

In examining the other categories included in the interview and the Generic Abilities, it is evident that while not identical, some common themes were present. Therefore, it was expected by the researcher that some correlation might exist between these common areas. For instance, item three on the Generic Abilities and interview question four both address communication. However, there was no correlation between these two categories. Other categories which appeared be similar in terms of content, but failed to reach significance, included: Generic Abilities numbers six and nine and interview question seven (problem solving/critical thinking) and Generic Abilities item one and interview question three (commitment to learning/self-evaluation). One correlation that was significant prior to the Bon Ferroni correction was between

item two on the Generic Abilities and clinician interview question five. These items addressed interpersonal skills and adaptability, respectively. However, after the correction for alpha inflation was made, no significance was noted. One possible explanation of why, for the most part, there was no correlation between the interview scores and Generic Abilities ratings is that three different groups of people (students, faculty and clinicians) were completing the ratings. While the interview was conducted by both physical therapy faculty and clinicians, the Generic Abilities form was completed by applicants to the physical therapy program. Even though anonymity was assured, applicants may have unconsciously inflated their ratings. In addition, if the applicants were unaccustomed to the process of self-evaluation, they may have rated themselves how they would like to be rather than how they actually are. Lack of evidence of the reliability between faculty and clinician ratings may have also played a role in the outcome of this study. While all faculty and clinicians are trained in the mechanics of conducting the interviews, informal observation of the scores show that the ratings given by the two groups are fairly similar. However, no reliability studies between the faculty and clinician scores have been done.

Another possible reason for the lack of significance between the data is that there was not much variability in scores. On the Generic Abilities, there were only four categories (1-4) and as Table 1 illustrates, these scores were not evenly distributed. In fact, one generic abilities item (item four) only used three of the four available categories. When examining the interview ratings, this same

problem arises. Despite the fact that the possible range of scores is zero to seven, with half points also available, most scores ranged from four to seven. In analyzing the correlations that were initially significant, it is interesting to note that five of the six were with the clinician questions. Further investigation of this should be undertaken. All clinicians and faculty who assist with the interview process are trained by the admissions committee so there should not be much difference in the scores that are given. One possible reason that a correlation exists with the clinician questions more frequently than the faculty is that the questions for the faculty center more on professional selection and academic issues while the clinician questions are more directly related to physical therapy practice. Likewise, the Generic Abilities were constructed after much input from clinicians and deal with professional behaviors identified as important to physical therapy practice.

While the variables examined in this study are much different than those used by other authors, some comparisons can be made.

Of the studies reviewed, only two examined the relationship between interviews and clinical performance. Balogun (1988) and Zeidner et al. (1990) both found that interview ratings were able to predict success as evaluated by clinical performance. However, while Zeidner et al. (1990) evaluated clinical performance directly through evaluation ratings, Balogun (1988) assessed clinical skills via an oral-practical examination. While this study did not directly evaluate clinical performance, the Generic Abilities do assess those behaviors identified as important to the practice of physical therapy. This form, though,

was completed by students prior to any formal physical therapy education. It would be interesting to see how those same applicants, if admitted to the program, would be rated by faculty and clinicians on the Generic Abilities. Other studies looking at the ability of interviews to predict success have used academic performance as the dependent variable. Levine et al. (1986) and Roehrig (1990) both found that the interview was not a valid predictor of future academic success. Murden et al. (1978) was the only study of those analyzed that looked at the predictability of personal characteristics on clinical success. The behaviors identified in the study were maturity, rapport and motivation for a career in medicine. While these specific behaviors are not contained within the Generic Abilities, they certainly appear to be traits that would be desirable in a healthcare professional. No other studies have looked at the relationship between affective behaviors and clinical performance. Since the Generic Abilities have been designed to specifically assess the behaviors identified as necessary to the practice of physical therapy, additional research on this tool should be done in the future. If the reliability and validity of the Generic Abilities can be established, the tool could be utilized in an infinite number of ways. Committees and faculty could use the tool to screen applicants during the admissions process. In addition, if the Generic Abilities had the capability of identifying those individuals who might have problems with performance in the clinic, faculty could intervene early and correct the deficiencies before they were manifested. The tool could also be used by faculty and clinicians as they assist students in the process of professionalization. Finally, physical therapy

supervisors and managers could use the form when performing yearly employee evaluations.

Conclusion

The data demonstrate that there is no significant correlation between the way in which a physical therapy applicant is scored during their interview and self-reported ratings on various professional behaviors. One correlation did reach significance, however, this researcher believes that it was most likely due to chance.

This study will assist the physical therapy faculty at the University of Osteopathic Medicine and Health Sciences as they evaluate the interview criteria used during the admissions process. With additional research on the reliability and validity, the Generic Abilities could very well replace the current interview format.

Recommendations

This study is just the first step in an attempt to predict success in physical therapy students. Recommendations for further research include:

1. The reliability and validity of interview questions should be examined, not only by this institution, but by all programs using the interview as a criteria for admission.
2. The reliability and validity of the Generic Abilities should be established as well as looking for any correlation which exists between it and clinical performance. As mentioned earlier, if the Generic

Abilities could predict problems on clinical internships, intervention and remediation could occur early on in the student's education.

3. Other variables that may play a role in defining success in physical therapy applicants and clinicians need to be identified. To date, the variables used most commonly to define success are grade point average, graduation and scores on licensing examinations.
4. Studies investigate how the Generic Abilities can be used in the admissions process should be done. Then, in addition to helping to choose individuals who will be academically successful, faculty can also use the tool to select students possessing the traits identified as necessary to the profession. This may help in reducing the incidence of affective problems in the clinic and classroom.

This researcher believes that success is defined by much more than the grade point average at graduation. Hopefully gaining more insight into the behaviors, characteristics and attitudes that define success can aid admissions committees in screening for the students who will not only succeed academically, but also contribute positively to their chosen field.

REFERENCES

Balogun, J. A. (1988). Predictors of academic and clinical performance in a baccalaureate physical therapy program. Physical Therapy, 68, 238-242.

Balogun, J. A., Karacoloff, L. A., & Farina, N. T. (1986). Predictors of academic achievement in physical therapy. Physical Therapy, 66, 976-980.

Federici, L., & Schuerger, J. (1974). Prediction of success in an applied M.A. psychology program. Educational and Psychological Measurement, 34, 945-952.

Graham, L. (1991). Predicting academic success of students in a master of business administration program. Educational and Psychological Measurement, 51, 721-727.

Gross, M. (1989). Relative value of multiple physical therapy admission criteria in predicting didactic, clinical, and licensure performance. Journal of Physical Therapy Education,3, 7-14.

Hayes, S. H., Fiebert, I. M., Carroll, S. R.. & Magill, R. N. (1997). Predictors of academic success in a physical therapy program: Is there a difference between traditional and nontraditional students?. Journal of Physical Therapy Education, 11, 10-16.

Levine, S. B., Knecht, H. G., & Eisen, R. G. (1986). Selection of physical therapy students: interview methods and academic predictors. Journal of Allied Health, 15, 143-151.

May, W. W., Morgan, B. J., Lemke, J. C., Karst, G. M., & Stone, H. L. (1995). Model for ability-based assessment in physical therapy education. Journal of Physical Therapy Education, 9, 3-6.

Murden, R., Galloway, G. M., Reid, J. C., & Colwill, J. M. (1978). Academic and personal predictors of clinical success in medical school. Journal of Medical Education, 53, 711-719.

Olney, S. J. (1977). Prediction of clinical competence of students of physical therapy. Physiotherapy Canada, 29, 254-258.

Rheault, W., & Shafernich-Coulson, E. (1988). Relationship between academic achievement and clinical performance in a physical therapy education program. Physical Therapy, 68, 378-380.

Roehrig, S. M. (1990). Prediction of student problems in a baccalaureate physical therapy program. Journal of Physical Therapy Education,4, 26-30.

Tidd, G. S.. & Conine, T. A. (1974). Do better students perform better in the clinic? Relationship of Academic Grades to Clinical Ratings. Physical Therapy, 54, 500-505.

Zeidner, M., Kremer-Hayon, L., & Laskov, D. (1990). Scholastic aptitude, matriculation grades, and group interview as predictors of performance in nursing school. Assessment and Evaluation in Higher Education, 15, 45-59.

APPENDIX A

PART E

UNIVERSITYOF OSTEOPATHIC MEDICINE AND HEALTH SCIENCES
DES MOINES, IOWA
INFORMED CONSENT

PARTICIPANT'S NAME_____**DATE**_____

PROJECT TITLE: A Comparison of an Interview Rating Form to the Generic Abilities and Predicting Success in First-Year Physical Therapy Students.

DESCRIPTION AND EXPLANATION OF PROCEDURE: I understand that I will completing a survey about my personal characteristics. I am aware that, if admitted to the Physical Therapy Program, faculty members will also be completing this survey at the end of Block I. I understand that while my name will not appear on the surveys I complete, they will be coded for identification and data analysis purposes. I am aware that only the researcher will know my code and that the information gained in this study will only be used for the purposes of this research. I understand that participating in this study is voluntary and will have no bearing on my admittance/rejection into the Physical Therapy Program at UOMHS.

RISKS AND DISCOMFORTS: I understand that while measures are taken to maintain my confidentiality, my information must be able to be identified by code for data analysis and interpretation. I am aware that only the researcher will have access to the information I have filled out.

POTENTIAL BENEFITS: While there are no direct benefits to me, I understand that this research will assist the Program in Physical Therapy in determining success of students. Participating in this study my aide me in learning more about my own personal characteristics which may help me in the practice of physical therapy.

ALTERNATIVES: There are no alternatives to this study.

I have fully explained to_____the nature
Participant/Parent/Guardian
and purpose of the above-described procedure and the risks involved in its performance. I have answered and
will answer all questions to the best of my ability. I will inform the participant of any changes in the procedure or the risks and benefits if any should occur during or after the course of the study.

_____
_____
Presenter and Title

_____
Presenter's Signature

CONSENT:

I have been satisfactorily informed of the above-described procedure with its possible risks and benefits. I give permission for my/my child's participation in this study. I know that my physician or his/her associates will be available to answer any questions I may have or will call with any questions upon my request.
I understand that I am free to withdraw this consent at any time and it will not affect my/my child's care.
I have been offered a copy of this form.

_____
Signature of Participant

_____
Signature of Parent/Guardian

_____
Witness to signatures of Participant/Parent Guardian

APPENDIX B

Generic Abilities

Generic abilities are attributes, characteristics or behaviors that are not explicitly part of the profession's core of knowledge and technical skills but are nevertheless required for success in the profession. Ten generic abilities were identified through a study conducted at UW-Madison in 1991-92. The ten abilities and definitions developed are:

Generic Ability	Definition
1. Commitment to Learning	The ability to self-assess, self-correct, and self-direct; to identify needs and sources of learning; and to continually seek new knowledge and understanding.
2. Interpersonal Skills	The ability to interact effectively with patients, families, colleagues, other health care professionals, and the community and to deal effectively with cultural and ethnic diversity issues.
3. Communication Skills	The ability to communicate effectively (i.e. speaking, body language, reading, writing, listening) for varied audiences and purposes.
4. Effective Use of Time and Resources	The ability to obtain the maximum benefit from a minimum investment of time and resources.
5. Use of Constructive feedback	The ability to identify sources of and seek out feedback and to effectively use and provide feedback for improving personal interaction.
6. Problem-Solving	The ability to recognize and define problems, analyze data, develop and implement solutions, and evaluate outcomes.
7. Professionalism	The ability to exhibit appropriate professional conduct and to represent the profession effectively.
8. Responsibility	The ability to fulfill commitments and to be accountable for actions and outcomes.
9. Critical Thinking	The ability to question logically; to identify, generate, and evaluate elements of logical argument; to recognize and differentiate facts, illusions, assumptions, and hidden assumptions; and to distinguish the relevant from the irrelevant.
10. Stress Management	The ability to identify sources of stress and to develop effective coping behaviors.

**Developed by the Physical Therapy Program, University of Wisconsin-Madison
May et al. Journal of Physical Therapy Education. 9:1, Spring 1995.

1. Commitment to Learning

Behavioral Criteria

Beginning Level

- Identifies problems
- Formulates appropriate questions
- Identifies and locates appropriate resources
- Demonstrates a positive attitude (motivation) toward learning
- Offers own thoughts and ideas
- Identifies need for further information

Developing Level (builds on preceding level)

- Prioritizes information needs
- Analyzes and subdivides large questions into components
- Seeks out professional literature
- Sets personal and professional goals
- Identifies own learning needs based on previous experiences
- Plans and presents an in-service, or research or case studies
- Welcomes and/or seeks new learning opportunities

Entry Level (builds on preceding levels)

- Applies new information and re-evaluates performance
- Accepts that there may be more than one answer to a problem
- Recognizes the need to and is able to verify solutions to problems
- Reads articles critically and understands limits of application to professional practice
- Researches and studies areas where knowledge base is lacking

Post-Entry Level (builds on preceding levels)

- Questions conventional wisdom
- Formulates and re-evaluates position based on available evidence
- Demonstrates confidence in sharing new knowledge with all staff levels
- Modifies programs and treatments based on newly-learned skills and considerations
- Consults with other allied health professionals and physical therapists for treatment ideas
- Acts as mentor in area of specialty for other staff

2. Interpersonal Skills

Behavioral Criteria

Beginning Level

- Maintains professional demeanor in all clinical interactions
- Demonstrates interest in patients as individuals
- Respects cultural and personal differences of others; is non-judgmental about patients' lifestyles
- Communicates with others in a respectful, confident manner
- Respects personal space of patients and others
- Maintains confidentiality in all clinical interactions
- Demonstrates acceptance of limited knowledge and experience

Developing Level (builds on preceding level)

- Recognizes impact of non-verbal communication and modifies accordingly
- Assumes responsibility for own actions
- Motivates others to achieve
- Establishes trust
- Seeks to gain knowledge and input from others
- Respects role of support staff

Entry Level (builds on preceding levels)

- Listens to patient but reflects back to original concern
- Works effectively with challenging patients
- Responds effectively to unexpected experiences
- Talks about difficult issues with sensitivity and objectivity
- Delegates to others as needed
- Approaches others to discuss differences in opinion
- Accommodates differences in learning styles

Post-Entry Level (builds on preceding levels)

- Recognizes role as a leader
- Builds partnerships with other professionals
- Establishes mentor relationships

3. Communication Skills

Behavioral Criteria

Beginning Level

- Demonstrates understanding of basic English (verbal and written): uses correct grammar, accurate spelling and expression
- Writes legibly
- Recognizes impact of non-verbal communication: maintains eye contact, listens actively
- Maintains eye contact

Developing Level (builds on preceding level)

- Utilizes non-verbal communication to augment verbal message
- Restates, reflects and clarifies message
- Collects necessary information from the patient interview

Entry Level (builds on preceding levels)

- Modifies communication (verbal and written) to meet the needs of different audiences
- Presents verbal or written message with logical organization and sequencing
- Maintains open and constructive communication
- Utilizes communication technology effectively
- Dictates clearly and concisely

Post-Entry Level (builds on preceding levels)

- Demonstrates ability to write scientific research papers and grants
- Fulfills role as patient advocate
- Communicates professional needs and concerns
- Mediates conflict

4. Effective Use of Time and Resources

Behavioral Criteria

Beginning Level

- Focuses on tasks at hand without dwelling on past mistakes
- Recognizes own resource limitations
- Uses existing resources effectively
- Uses unscheduled time efficiently
- Completes assignments in timely fashion

Developing Level (builds on preceding level)

- Sets up own schedule
- Coordinates schedule with others
- Demonstrates flexibility
- Plans ahead

Entry Level (builds on preceding levels)

- Sets priorities and reorganizes as needed
- Considers patient's goals in context of patient, clinic, and third party resources
- Has ability to say "No"
- Performs multiple tasks simultaneously and delegates when appropriate
- Uses scheduled time with each patient effeiciently

Post-Entry Level (builds on preceding levels)

- Uses limited resources creatively
- Manages meeting time effectively
- Takes initiative in covering for absent staff members
- Develops programs and works on projects while maintaining case loads
- Follows up on projects in timely manner
- Advances professional goals while maintaining expected workload

5. Use of Constructive Feedback

Behavioral Criteria

Beginning Level

- Demonstrates active listening skills
- Actively seeks feedback and help
- Demonstrates a positive attitude toward feedback
- Critiques own performance
- Maintains two-way communication

Developing Level (builds on preceding level)

- Assesses own performance accurately
- Utilizes feedback when establishing pre-professional goals
- Provides constructive and timely feedback when establishing pre-professional goals
- Develops plan of action in response to feedback

Entry Level (builds on preceding levels)

- Seeks feedback from clients
- Modifies feedback given to clients according to their learning styles
- Reconciles differences with sensitivity
- Considers multiple approaches when responding to feedback

Post-Entry Level (builds on preceding levels)

- Engages in non-judgmental, constructive problem-solving discussions
- Acts as conduit for feedback between multiple sources
- Utilizes feedback when establishing professional goals
- Utilizes self-assessment for professional growth

6. Problem-Solving

Behavioral Criteria

Beginning Level

- Recognizes problems
- States problem clearly
- Describes known solutions to problems
- Identifies resources needed to develop solutions
- Begins to examine multiple solutions to problems

Developing Level (builds on preceding level)

- Prioritizes problems
- Identifies contributions to problem
- Considers consequences of possible solutions
- Consults with others to clarify problems

Entry Level (builds on preceding levels)

- Implements solutions
- Reassesses solutions
- Evaluates outcomes
- Updates solutions to problems based on current research
- Accepts responsibility for implementing solutions

Post-Entry Level (builds on preceding levels)

- Weighs advantages
- Participates in outcome studies
- Contributes to formal quality assessment in work environment
- Seeks solutions to community health-related problems

7. Professionalism

Behavioral Criteria

Beginning Level

- Abides by APTA Code of Ethics
- Demonstrates awareness of state licensure regulations
- Abides by facility policies and procedures
- Projects professional image
- Attends professional meetings
- Demonstrates honesty, compassion, courage and continuous regard for all

Developing Level (builds on preceding level)

- Identifies positive professional role models
- Discusses societal expectations of the profession
- Acts on moral commitment
- Involves other health care professionals in decision-making
- Seeks informed consent from patients

Entry Level (builds on preceding levels)

- Demonstrates accountability for professional decisions
- Treats patients within scope of expertise
- Discusses role of physical therapy in health care
- Keeps patient as priority

Post-Entry Level (builds on preceding levels)

- Participates actively in professional organizations
- Attends workshops
- Actively promotes the profession
- Acts in leadership role when needed
- Supports research

8. Responsibility

Behavioral Criteria

Beginning Level

- Demonstrates dependability
- Demonstrates punctuality
- Follows through on commitments
- Recognizes own limits

Developing Level (builds on preceding level)

- Accepts responsibility for actions and outcomes
- Provides safe and secure environment for patients
- Offers and accepts help
- Completes projects without prompting

Entry Level (builds on preceding levels)

- Directs patients to other health care professionals when needed
- Delegates as needed
- Encourages patient accountability

Post-Entry Level (builds on preceding levels)

- Orients and instructs new employees/students
- Promotes clinical education
- Accepts role as team leader
- Facilitates responsibility for program development and modification

9. Critical Thinking

Behavioral Criteria

Beginning Level

- Raises relevant questions
- Considers all available information
- States the results of scientific literature
- Recognizes "holes" in knowledge base
- Articulates ideas

Developing Level (builds on preceding level)

- Feels challenged to examine ideas
- Understands scientific method
- Formulates new ideas
- Seeks alternative ideas
- Formulates alternative hypotheses
- Critiques hypotheses and ideas

Entry Level (builds on preceding levels)

- Exhibits openness to contradictory ideas
- Assesses issues raised by contradictory ideas
- Justifies solutions selected
- Determines effectiveness of applied solutions

Post-Entry Level (builds on preceding levels)

- Distinguishes relevant from irrelevant patient data
- Identifies complex patterns of associations
- Demonstrates beginning intuitive thinking
- Distinguishes when to think intuitively vs. analytically
- Recognizes own biases and suspends judgmental thinking
- Challenges others to think critically

10. Stress Management

Behavioral Criteria

Beginning Level

- Recognizes own stressors or problems
- Recognizes distress or problems in others
- Seeks assistance as needed
- Maintains professional demeanor in all situations

Developing Level (builds on preceding level)

- Maintains balance between professional and personal life
- Demonstrates effective affective responses in all situations
- Accepts constructive feedback
- Establishes outlets to cope with stressors

Entry Level (builds on preceding levels)

- Prioritizes multiple commitments
- Responds calmly to urgent situations
- Tolerates inconsistencies in health-care environment

Post-Entry Level (builds on preceding levels)

- Recognizes when problems are unsolvable
- Assists others in recognizing stressors
- Demonstrates preventative approach to stress management
- Establishes support network for self and others
- Offers solutions to the reduction of stress within the work environment

APPENDIX C

SAMPLE QUESTIONS - FACULTY

I. Professional Selection

1. What alternative career goals have you considered?
2. How did you prepare for this interview?

II. Goals

1. What are your goals for the next year? What other goals have you set in your life?
2. After not being accepted last year, how did you re-evaluate and modify your goals?

III. Self-Evaluation

1. What do you do when your time schedule is upset by unforeseen circumstances? Give an example.
2. What are your strengths/weaknesses for becoming a student at our university?
3. We have all had times when we just couldn't get everything done on time. When and why has this happened to you? How did you resolve this?
4. Do you have good study skills? How do you know? Describe your study skills. Do you feel these are good and bad and why.
5. What is the role of a student in a graduate learning environment? What is the role of a faculty member in a graduate learning environment?
6. What community activities are you currently involved in? What community activities have you been involved in? Describe positive and negative aspects of the activity.
7. Give me a specific example of when you received constructive feedback and how did you utilize this feedback.

IV. Oral Communication Skills

V. Adaptability

1. Describe a situation in which your initial attempt to gain someone's support or cooperation failed. Did you try again? What approach did you use the second, third time?
2. Give me an example of when you have had to work with someone who was very difficult to get along with. Why was that person difficult? How did you handle the situation?
3. Tell me about a time that you caused problems for others. How did the problem come to your attention? How was the situation solved?
4. We've all had occasions when we misinterpreted something someone told us, or vice versa. Give me some examples of when this happened to you and why you think it happened.

5. What is the role of a student in a graduate learning environment? What is the role of a faculty member in a graduate learning environment?

6. Tell me about a class you really liked and a class you did not like. What did you like least/best and why?

VI. Knowledge of P.T.

1. What types of information do you feel it is important for a P.T. to know?

2. Define professionalism.

3. Define integrity.

4. Are you aware of the practice of direct access? What does this mean to you when you become a therapist? What personal experiences have you had to prepare for this?

VII. Problem Solving Ability

1. Give me two examples of good decisions you have made in the last six months.

2. We've all had occasions when we misinterpreted something someone told us, or vice versa. Give me some examples of when this happened to you and why you think it happened.

3. If you were a color, what color would you be? Why?

4. Last accepted/Too many accepted. How would you react?

5. Describe a recent situation at school/home/job that required several things to all be done at the same time. How did you handle it? What was the result?

SAMPLE QUESTIONS - CLINICIAN

I. Professional Selection

1. What magazines or literature have you recently read and obtained useful, career-related information from?

2. What is the role of the P.T. in the health care environment?

II. Goals

1. What priorities have you identified in your personal life? How does a career in P.T. meet these personal needs?

2. Have you ever had to change your goals, if so why? How did you change them and what was the result?

3. After not being accepted last year, how did you re-evaluate and modify your goals?

III. Self-Evaluation

1. How have you kept informed about important changes in the field?

2. We all have ways of showing consideration for others. What are some of the things you've actually done in the past six months?

3. What motivates you to put you best foot forward?

IV. Oral Communication

1. How good are your listening skills? How do you know?

V. Adaptability

1. Describe a situation in which your initial attempt to gain someone's support or cooperation failed. Did you try again? What approach did you use the second, third time?

2. How have you gone about developing rapport with classmates, roommates, etc.

3. Three staff members have called in sick today. There is obvious tension in the department. You are asked to increase your patient load for today to cover for the other staff. How would you handle the situation?

4. What types of P.T. experience have you had? What did you like best/least and why?

5. Why did a patient not get better? Appropriate candidates for P.T.

VI. Knowledge of Physical Therapy

1. What magazines or literature have you recently read or obtained useful. Career-related information from?

2. How have you kept informed about important changes in the field?

3. What is the role of the physical therapist assistant?

VII. Problem Solving Ability

1. How have you gone about making decisions affecting your career decision?

2. What jobs have you had during high school and/or college?
   What was your first job? What did you like/dislike? How did you get there? Did your parents or you drive? How did you handle your work schedule if you had a school or social conflict? Did you interview for the job? How did you spend your money?

3. What chores were you expected to do at home? Were you paid or given an allowance for them? How did you spend your money?

INTERVIEW RATING SCALE

All numbers between and including 1 through 7 can be used
Also, you can use half-points if necessary

I. Reasons for Professional Selection

7 - Displays a strong desire to achieve goal of becoming a physical therapist. Has made a firm decision based on sound investigation of career opportunities.

5 - Sincere in desire to become a physical therapist. Has made a decision based on investigation of some career opportunities.

3 - Has a desire to help other people, and believes he/she may be able to do this through a career in physical therapy. Has not based decision on investigation of career opportunities.

1 - Has not made up his/her mind about a career. Is unaware of career opportunities.

II. Goals

7 - Has set goals and can demonstrate/verbalize accomplishments. Is cognizant of what needs to yet be accomplished. Realizes/accepts responsibility for meeting or not meeting their goals.

5 - Has set goals but has difficulty verbalizing what accomplishments have been made. Accepts some responsibility for meeting/not meeting goals, but expects others to share the responsibility.

3 - Has set some goals, but no overall plan is evident.

1 - Does not set goals or seems unaware of how goals could benefit his/her life.

III. Self-Evaluation

7 - Demonstrates ability to effectively manage time in all aspects of daily life. Can verbalize effective personal study habits and provide rationale. Ability to articulate intrinsic motivation and initiative and provide examples. Understands the role of the individual in a community/clinic/classroom setting. Can demonstrates how he/she has positively contributed to this setting.

5 - Demonstrates ability to effectively manage time in only 1-2 aspects of daily life. Can verbalize effective study habits but can not provide rationale. Ability to articulate intrinsic motivation and initiative but can't provide examples. Understands the role of the individual in a community/clinic/classroom setting.

3 - Demonstrates attempt to effectively manage time in 1-2 areas of daily life. Difficulty verbalizing effective personal study habits. Difficulty in articulating intrinsic motivation and initiative. Difficulty verbalizing role in community/clinic/ classroom setting.

1 - Inability to effectively manage time. Lack of effective personal study habits. Inability to articulate appropriate intrinsic motivation and initiation. Unaware of the role of the individual in a community/clinic/classroom setting.

IV. Oral Communication Skills

7 - Calm and composed throughout interview. Grasps ideas quickly and with genuine understanding. Expresses ideas in a very clear understandable manner. Ideas are very logical, well organized and consistent. Initiates discussion as appropriate. Is an active I listener. Uses good non-verbal communication skills. Good eye contact.

5 - Calm and composed through most of interview. Demonstrates good understanding through most of interview. Responds in relevant manner through most of interview. Expresses ideas well enough for understanding. Shows little tendency to jump from one topic to another, or address unrelated matters. Uses good non-verbal communication skills through most of interview.

3 - Some trouble controlling emotional reactions in interview situation. Has some difficulty comprehending questions. Reluctant to ask questions when asked for. Expression of ideas is at times difficult to understand. Has a tendency to jump from one topic to another and tends to bring in unrelated matters. Uses appropriate non-verbal communicative skills occasionally.

1 - Projects self negatively to interview. Responses to discussion demonstrates lack of understanding. Responses are frequently irrelevant. Acts somewhat confused and inattentive. Expression of ideas is unorganized and confused. Is only a passive listener, has poor non-verbal communicative skills.

V. Adaptability - Acceptance of Different Values

7 - Conveys that values which differ from his own are valid and acceptable. Respects the right of others to have values which differ from his/her own. Is adaptive to change and can identify when change is necessary.

5 - Conveys some difficulty in accepting the right of others to have values which differ from his/her own as valid. However, accepts others that have values which differ from his own. Has a stress release mechanism yet somewhat limited. Is adaptive to change, although a little hesitant to change.

3 - Conveys some difficulty in accepting values which differ from his/her own as valid. Also conveys some difficulty in accepting others that have values which differ from his/her own. Feels that he/she should convince others to do things his/her way. Stress relief mechanism is somewhat questionable. Conveys that he/she would adapt to changes, but is somewhat reluctant.

1 - Refuses to accept others that have values that differ from his/her own. Rejects the principle that values differ from his/her own are valid. Does not have a mechanism of stress release. A rigid person unable and/or unwilling to change schedules or habits.

VI. Knowledge of Physical Therapy

7 - Clearly describes role of physical therapists and physical therapists assistant. Describes at least one function of the professional organization. Can describe role of a physical therapist beyond patient care. Can describe the role of a professional.

5 - Describes some role differences of physical therapist and physical therapist assistant. Describes that professional physical therapy organization exists. Can define the term professinal.

3 - Describes that there are different levels of workers in physical therapy settings, but is unable to differentiate roles. Cannot adequately define the term professional.

1 - Unable to describe different levels of workers in physical therapy setting. Has read published materials on physical therapy or has the basic information relative to the profession through personal contacts.

VII. Problem Solving Abilities

7 - Can articulate a logical problem solving process and defend their process.

5 - Can articulate a logical problem solving process, but can not defend the process.

3 - Difficulty articulating a logical problem solving process.

1 - Cannot articulate a problem solving process.